

CLAIMS

1. A liquid crystal display comprising a ferroelectric liquid crystal sandwiched between two substrates,

characterized in that an electrode and a photo alignment layer are each successively formed on opposite faces of the two substrates facing each other;

a constituent material of the respective photo alignment layer is a photoreactive material which generates a photoreaction to give anisotropy to the photo alignment layer; and

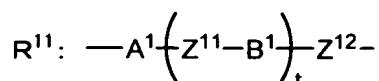
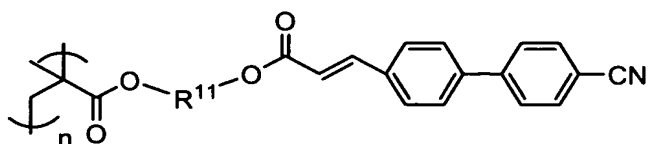
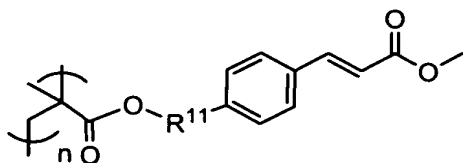
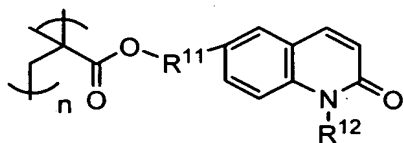
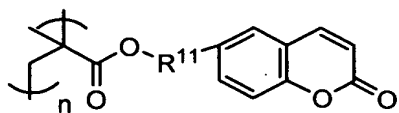
the constituent material of the respective photo alignment layer has a different composition from each other with the ferroelectric liquid crystal sandwiched therebetween.

2. The liquid crystal display according to claim 1, characterized in that the photoreaction is a photo-dimerization reaction or a photo decomposition reaction.

3. The liquid crystal display according to claim 1 or 2, characterized in that the photoreactive material comprises a photo-dimerization-reactive compound having a radical-polymerizable functional group and dichroism that different absorptivities are exhibited depending on a polarization direction thereof.

4. The liquid crystal display according to claim 3, characterized in that the photo-dimerization-reactive compound is a dimerization-reactive polymer containing, as its side chain, any one of cinnamic acid ester, coumalin, and quinoline.

5. The liquid crystal display according to claim 3 or 4, characterized in that the photo-dimerization-reactive compound is at least one selected from dimerization-reactive polymers represented by the following formulae:



in which A¹ and B¹: 1,4-phenylene, a covalent single bond, pyridine-2,5-diyl, pyrimidine-2,5-diyl, 1,4-cyclohexylene or 1,3-dioxane-2,5-diyl;

Z¹¹ and Z¹²: -CH₂-CH₂-, -COO-, -OOC-, or a covalent single bond;

t: an integer of 0 to 4;

R¹²: a lower alkyl; and

n: an integer of 4 to 30,000.

6. The liquid crystal display according to any one of claims 1 to 5, characterized in that the ferroelectric liquid crystal exhibits mono-stability.

7. The liquid crystal display according to any one of claims 1 to 6, characterized in that the ferroelectric liquid crystal is a liquid crystal having no smectic A phase in a phase series thereof.

8. The liquid crystal display according to any one of claims 1 to 7, characterized in that the ferroelectric liquid crystal is a liquid crystal which constitutes a single phase.

9. The liquid crystal display according to any one of claims 1 to 8, characterized in being driven by an active matrix system using a thin film transistor.

10. The liquid crystal display according to any one of claims 1 to 9, characterized in being displayed by a field sequential color system.